APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/820,049	03/28/2001	Carl K. Abrahamson	TA 014	3090

22948 7590 09/10/2004	EXAMINER
MARSTELLER & ASSOCIATES P O BOX 803302 DALLAS, TX 75380-3302	GARCIA OTERO, EDUARDO

ART UNIT	PAPER NUMBER
2123	

DATE MAILED: 09/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/820,049	ABRAHAMSON, CARL K.
	Examiner	**Art Unit**	
	Eduardo Garcia-Otero	2123	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 March 2001*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date *3/28/2001*.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____ .

DETAILED ACTION: Non-Final (first action on the merits)

Introduction

1. Title is: DYNAMICALLY ADAPTABLE DIGITAL ARCHITECTURE SYSTEM.

2. First named inventor is: ABRAHAMSON.

3. Claims 1-10 have been submitted, examined, and rejected.

4. US nonprovisional application was filed 3/28/2001, and no earlier priority is claimed.

Index of Prior Art Used for Rejections

5. Sample refers to US patent 5,329,470.

Definitions

6. **"Emulate"** is defined as "To represent a system by a model that accepts the same inputs and produces the same outputs as the system represented. For example, to emulate an 8-bit computer with a 32 bit computer. See also; simulate." The Authoritative Dictionary of IEEE Standards and Terms, Seventh Edition, by IEEE Press, ISBN 0-7381-2601-2, 2000.

7. **"EPROM"** is defined as "erasable programmable red-only memory", which in turn is defined as "... A type of programmable read-only memory that can be erased and reprogrammed using ultraviolet light". The Authoritative Dictionary of IEEE Standards and Terms, Seventh Edition, by IEEE Press, ISBN 0-7381-2601-2, 2000.

8. **"Firmware"** is defined as "The combination of a hardware device and computer instructions and data that reside as read-only software on that device. Notes: 1. This term is sometimes used to refer only to the hardware device or only to the computer instructions or data, but these meanings are deprecated. 2. The confusion surrounding this term has led some to suggest that it be avoided altogether." The Authoritative Dictionary of IEEE Standards and Terms, Seventh Edition, by IEEE Press, ISBN 0-7381-2601-2, 2000.

35 USC § 112- first paragraph- enablement

9. The following is a quotation of the first paragraph of 35 U.S.C. 112: The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

10. **Claim 3 is rejected under 35 U.S.C. 112, first paragraph,** as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

11. In claim 3, the term "the configuration controller **determines location** of the configurable electronic circuit within the electronic master system" is not enabled.

12. The specification does not adequately describe how said location is determined by the configuration controller. If said configurable electronic circuit is emulating or replicating a sub-component of said master system, then it is not clear how the configuration controller will even recognize the existence of said configurable electronic circuit, much less determine the location of said configurable electronic circuit.

35 USC § 112-Second Paragraph-indefinite claims

13. The following is a quotation of the second paragraph of 35 U.S.C. 112: The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

14. Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

15. In claim 1, the term **"replicating...replicate"** is not clear. In view of the Specification, it appears that Applicant's intent is for the configurable electronic circuitry to **emulate** a sub-component. The IEEE Dictionary defines "emulate" as "To represent a system by a model that accepts the same inputs and produces the same outputs as the system represented. For example, to emulate an 8-bit computer with a 32 bit computer. See also; simulate." Thus, the use of the term "replicate" is a bit misleading and inaccurate in this context, particularly in the first limitation of claim 1. In other words, replication implies that the internal structure and internal (hidden) processes are identical or at least equivalent to the replicated component, whereas emulation only implies that a set of inputs will result in the same set of outputs as the emulated component (but the internal structure and processes may be different). Thus, the term "replicate" is much more narrow and restrictive than the term

"emulate", but said narrow and restrictive meaning does not appear to be intended by the Applicant, and is not supported by the specification.

16. In claim 1, the term **"configurable electronic circuitry"** is not clear, but apparently refers to "firmware" discussed in the specification. The Specification page 4 states "Embedded firmware is a key to the approach of the present invention… using firmware to accomplish the needed system functions" and "firmware, one can rapidly implement and load modifications into the card without a single hardware change". Apparently the "firmware" is located in a "card".

17. Note that IEEE Dictionary defines "firmware" as "The combination of a hardware device and computer instructions and data that reside as read-only software on that device. Notes: 1. This term is sometimes used to refer only to the hardware device or only to the computer instructions or data, but these meanings are deprecated. 2. **The confusion surrounding this term has led some to suggest that it be avoided altogether."** Emphasis added.

18. Thus, in view of the IEEE definition of firmware, the Examiner finds the term "configurable electronic circuitry" to be indefinite. Possibly the Applicant intends EPROM or similar, but that is far from clear.

19. Claims 2-10 are rejected as indefinite for the same reasons as claim 1 above.

Claim Rejections - 35 USC § 102(b)

20. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action: A person shall be entitled to a patent unless – (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

21. **Claims 1-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Sample, US Patent**

22. Independent claim 1 is an "electronic system" claim with 4 limitations, numbered by the Examiner for clarity.

23. In claim 1 limitation [1], **"configurable electronic circuitry means for replicating an output signal from a respective known electronic system sub-component of a known electronic master system, the output signal corresponding to a function of the electronic**

system subcomponent" is disclosed by Sample Abstract "system for physical emulation of electronic circuits... an array of programmable gate elements".

24. In claim 1 limitation [2], **"an input/output interface for electronically mating the configurable electronic circuit to the electronic master system"** is disclosed by Sample FIG 1A "INTERFACE".

25. In claim 1 limitation [3], **"a configuration controller element electronically connectable with the configurable electronic circuit, the configuration controller configures the configurable electronic circuit to replicate a selected function and operational characteristics of the known electronic system sub-component"** is disclosed by Sample FIG 1A "CONFIGURATION UNIT".

26. In claim 1 limitation [4], **"the configurable electronic circuit has an output adaptable as an input to the electronic master system to replicate and replace functions of the known electronic system sub-component acting in the electronic master system"** is disclosed by Sample FIG 1A "EMULATION ARRAY".

27. In claim 2, **"the configurable electronic circuit and the input/output interface are mounted with a circuit card assembly"** is disclosed by Sample column 5 line 45 "circuit card".

28. In claim 3, **"the configuration controller determines location of the configurable electronic circuit within the electronic master system"** is disclosed by Sample FIG 1A "CONFIGURATION UNIT".

29. In claim 4, **"a processor means external to the configurable electronic circuit to load instructions onto the configurable electronic circuit"** is disclosed by Sample FIG 1A "CONFIGURATION UNIT" and "DATA ENTRY WORKSTATION".

30. In claim 5, **"the configurable electronic circuit further includes memory means for storing electronic information"** is disclosed by Sample FIG 1A "CONFIGURATION UNIT" and "MEMORY DEVICES".

31. In claim 6, **"the configurable electronic circuit includes digital logic circuitry"** is disclosed by Sample FIG 1A "EMULATION ARRAY".

32. In claim 7, **"a microprocessor means for executing an emulator program of instructions from the known electronic system subcomponent"** is disclosed by Sample FIG 1A "CONFIGURATION UNIT" and "LOGIC ANALYZER/PATTERN GENERATOR"

33. Claims 8-10 are "method" claims, and are rejected for the same reasons as "electronic system" claims 1-7 above.

Additional Cited Prior Art

34. The following US patents or publications are hereby cited as prior art, but have not been used for rejection. Applicant should review these carefully before responding to this office action. The following patents are provided to indicate the relatively advanced state of the art in the field of emulation, as well as the terminology typically used in the field of emulation.

35. Swoboda US patent 6,708,290 FIG 1 discloses "EMULATION CONTROLLER".

36. Swoboda US patent 6,671,665 discloses "in-circuit-emulation" at Abstract.

37. Reblewski US patent 6,647,362 discloses "A scalable emulation system... logic boards... expansion connectors" at Abstract.

38. Natarajan US patent 6,611,796 discloses "An emulation device is provided that has a processor core" at Abstract.

39. Swoboda US patent 6,606,590 discloses "In-circuit-emulation of an integrated circuit" at Abstract.

Conclusion

40. All pending claims stand rejected.

Communication

41. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eduardo Garcia-Otero whose telephone number is 703-305-0857. The examiner can normally be reached on Monday through Thursday from 9:00 AM to 8:00 PM. If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Kevin Teska, can be reached at (703) 305-9704. The fax phone number for this group is 703-872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the group receptionist, whose telephone number is (703) 305-3900.

* * * *

JEAN R. HOMERE
PRIMARY EXAMINER